Commercial Recycling Cost Study

Public Workshop

September 21, 2010

CalRecycle

HF&H

Overview

- Project Objectives
- Data Gathering Process
- Sources of Data
- Limitations of Data
- Targets and Program Scenarios
- Cost Model Methodology
- Results

Project Objectives

- Estimate Available Tons by Material
- Calculate tons of each material needed to achieve 5MMTCO2E reduction.
- Estimate cost of recycling under different program scenarios.
- Forecast the cost of proposed regulation from 2012 through 2020.

Comments on Draft Report

- DRAFT Report Presented for Review & Comment
- CalRecycle/ARB Prepared Forward
  - Updated GHG Emissions Reduction Factors (RERFs, CERFs)
  - Updated Costs
    (Result from changes in RERFs, CERFs)
  - Implementation Profile
  - Common Baseline Year
  - Transformation Tonnage

Comments on Draft Report

- HF&H Draft Report - CalRecycle will:
  - Review & Consolidate Public Comment
  - Provide HF&H Direction on Changes for Final Report
- Supplemental Economic Analysis - CalRecycle/ARB
  - Accept & Consider Additional Data
  - Prepare Supplemental Analysis for ISOR

Data Gathering Process Industry Stakeholders

- 50 Targeted Industry Participants
  - Collection, Processing, Brokers
  - Focused on Entities in Multiple Regions
  - Survey of Program/Operational Data
  - Survey of Cost Data
- 6 Participated Fully, 4 Provided Program/Operational Data
- Significant Processing & Long-Haul Transport Data Acquired

Data Gathering Process Technical Advisory Committee

- Assembled for Multiple Projects
- Reviewed and Commented on Work Plan and Survey Tools
- Included:
  - CAW, CA-ILG, CRRC, City of L.A., City of San Jose, Env. Services Rural Counties JPA, L.A. County San Districts, Monterey Regional WMD, WM Inc.

Data Gathering Process
Public Meetings and Workshops

- Develop/Confirm Understanding of Commercial Recycling Approaches
- 3 CIWMB/CalRecycle Workshops
  - Sacramento & Diamond Bar Stakeholder Input Workshops
  - June 16, 2010 MCR Workshop
- 1 CRRA Conference Workshop
- 4 Regional/County Meetings

Sources of Data
Tonnage & Waste Characterization

- 2008 Disposal Reporting System Tonnages by County
- 2008 Statewide Waste Characterization Study
- Business Waste Profiles:
  - 1999 Statewide Characterization
  - 2001 City of LA Characterization
  - 2006 Statewide Selected Industry Groups Characterization

Sources of Data
Emissions Factors

- California Air Resources Board
  - To be presented by David Edwards

Sources of Data
Operational & Cost Data

- Survey Responses
- Other CIWMB/CalRecycle Studies
- Landfill Tipping Fee Survey
- Collection Rate Survey
- HF&H Project Files & Databases:
  - Public Agency Procurements
  - Cost-of-Service Studies (Public Agency)
  - Cost-of-Service Rate Reviews

Sources of Data
Procurement Cost Form Example

Labor-Related Costs (include regular & pool personnel)	
Regular Wages	$1,737,299
Overtime Wages	$257,686
Holiday Wages	$126,091
Vacation Wages	$124,033
Sick Leave Wages	$77,081
Workers Compensation Insurance Premiums	$279,298
Workers Compensation Claims	$20,000
Health & Welfare	$814,968
Pension/ Retirement Benefits	$537,264
Payroll Taxes	$348,329
Other : Uniforms	$0
Other : Transfer Labor cost for Compostable	$0
Total Labor Related-Costs	$4,322,049

Sources of Data
Detailed Labor Cost Assumptions

Wages/ Salary	Driver Wages per Hour	
	Container Delivery Wages per Hour	
	Dispatcher Wages per Hour	
	Supervisor Salary per Year	
	Ops Manager Salary per Year	
Bonus	Driver Annual Bonus ($)	
	Support Staff Annual Bonus ($)	
	Salaried Bonus (%)	
Benefits	401(k)/Pension Contribution (% of Regular Wages)	
	Health & Welfare Benefits ($ per Employee/Yr.)	
	Uniforms ($ per Employee/Yr.)	
Work Rules	Overtime Premium %	
	Driver Hours per Day	
	Support Staff Hours per Day	
	Collection Days per Year	
	Paid Time Off Days per Year	

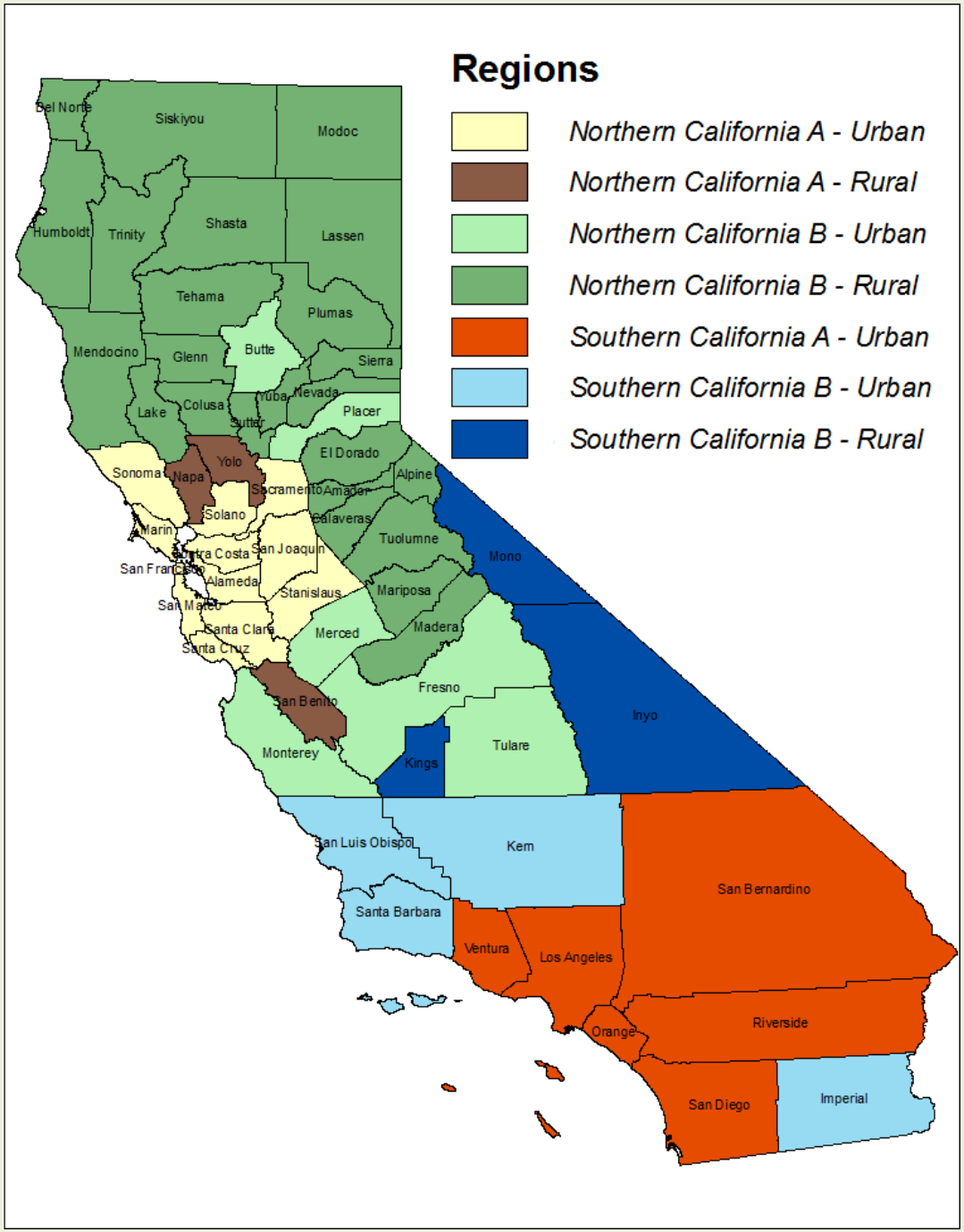
		Commercial / Multi-family (Form 6B)		
		Solid Waste	Recyclable Materials	Compostables
1	**Account Information**			
	# of weekly accounts/customers	1462	1230	21
	Labor Information			
2	# of regular route personnel	4.0	2.0	1.0
3	Labor hours/day/person	8.71	8.00	8.00
4	**Total labor hours/year**	9,058	4,160	2,080
	Route Information			
	# of route hours/year per			
17	Total	9,060	6,240	2,080
18	# of FTE routes	4.36	3.00	1.00
24	# of lifts/week for all routes	2,265	1,080	320
25	# of lifts/year for all routes	117,759	56,160	16,640
26	# of lifts/route hour	13.00	9.00	8.00
	Vehicle Information			
30	# of regular collection vehicles (from Form 4)	4.00	4.00	1.00
31	# of spare collection vehicles (from Form 4)	1.00		
32	**Total # of collection vehicles**	5.00	4.00	1.00
33	# of annual gallons used in collection vehicl	31,712	21,840	7,280
	Tonnage Information (annual)			
34	Solid waste collected	21,775		
35	Recyclable materials collected		2,596	
36	Compostables collected			767
38	**Total Collected**	21,775	2,596	767

Limitations of Data

- Statewide Scope & Regional Aggregation
- Reliance on 3rd Party Data
- Availability of Data
- Cost of Current Recycling Unknown
- Technology

Definition of Regions

- Port Used to Export Commodities
  - Oakland vs. Long Beach/Los Angeles
  - Defined NCA vs. SCA
- Distance from Port for Export
  - 90 Miles
  - Defined A vs. B
- Disposal Volume
  - 200,000 Tons per Year
  - Defined Rural vs. Urban


Regions
Northern California A - Urban
Northern California A - Rural
Northern California B - Urban
Northern California B - Rural
Southern California A - Urban
Southern California B - Urban
Southern California B - Rural
Del Norte
Siskiyou
Modoc
Humboldt
Trinity
Shasta
Lassen
Tehama
Plumas
Mendocino
Glenn
Butte
Sierra
Nevada
Yuba
Colusa
Lake
Sutter
Placer
El Dorado
Yolo
Sonoma
Napa
Sacramento
Amador
Alpine
Solano
Calaveras
Marin
Tuolumne
Contra Costa
San Joaquin
Mono
San Francisco
Alameda
Stanislaus
Mariposa
San Mateo
Santa Clara
Merced
Madera
Santa Cruz
Fresno
San Benito
Inyo
Monterey
Tulare
Kings
San Luis Obispo
Kern
San Bernardino
Santa Barbara
Ventura
Los Angeles
Orange
Riverside
San Diego
Imperial

Tonnage Modeling Generation/Delivery Types

- Commercial & MFD, Non-C&D, Commercially Hauled
- Commercial & MFD, Non-C&D, Self-Hauled
- Commercial & MFD, C&D, Commercially Hauled
- Commercial & MFD, C&D, Self-Hauled

Tonnage Modeling
Quantity & Composition Estimates

- Quantity
  - 2008 DRS Disposal by County,
  - Generation/Delivery Type (2008 Waste Characterization)
- Composition
  - Cascadia Business Waste Characterization Database (SIC/NAICS)
  - CA EDD Quarterly Census of Employment and Wages

Available Tonnage by Material & Region

	Northern California A (Urban)	Northern California A (Rural)	Northern California B (Urban)	Northern California B (Rural)	Southern California A (Urban)	Southern California B (Urban)	Southern California B (Rural)	State of California
Materials	**TOTAL ALL SECTORS**							
HDPE	26,646	1,271	8,952	3,940	82,314	4,879	515	128,517
PET	19,967	907	6,796	3,067	60,885	3,683	398	95,703
Other plastics	284,127	14,756	100,395	45,061	934,050	58,356	6,293	1,443,038
Aluminum cans and nonferrous metals	15,127	635	4,753	2,180	47,756	2,640	263	73,353
Steel cans and ferrous metals	163,057	7,438	49,499	23,336	556,990	29,233	2,796	832,349
Glass containers	50,156	2,546	18,217	8,611	144,033	10,278	1,172	235,012
Cardboard and paper bags	254,222	12,859	91,961	41,588	831,539	50,894	5,241	1,288,304
Magazines and catalogs	30,461	1,390	9,956	4,378	90,768	5,487	559	142,998
Newsprint	53,575	2,365	16,842	8,030	159,478	9,867	960	251,118
Office paper	108,249	5,085	36,583	15,624	330,600	19,838	1,956	517,934
Phone books	3,202	193	1,277	491	9,386	584	78	15,211
Compostable paper	320,622	15,875	115,576	51,374	1,002,507	63,286	6,883	1,576,124
Dimensional lumber	309,392	14,836	93,278	50,939	1,128,150	50,822	4,930	1,652,347
Food	656,165	34,315	249,795	118,098	1,963,824	137,644	15,858	3,175,699
Yard waste	319,877	12,081	80,155	38,786	949,210	56,736	4,335	1,461,181
Carpet	121,559	4,323	27,816	13,217	459,583	18,122	1,692	646,312
Concrete	104,953	2,765	19,362	8,910	359,528	10,881	1,035	507,435
Tires	6,581	290	2,552	1,176	23,049	1,433	91	35,172
All other materials	2,467,135	90,956	607,474	306,155	8,981,696	393,722	35,904	12,883,043
Total	**5,315,075**	**224,887**	**1,541,239**	**744,958**	**18,115,350**	**928,382**	**90,959**	**26,960,850**

Program Scenarios

- Baseline – All Materials to Disposal
  - 26.9M Tons Disposed
- Scenario 1 – Traditional Recyclables
  - 1.48M Tons Recovered (5.5% Recovery Rate)
- Scenario 2 – Traditional Recyclables and C&D
  - 1.56M Tons Recovered (5.8% Recovery Rate)
- Scenario 3 – Traditional Recyclables and Organics
  - 3.54M Tons Recovered (13.1% Recovery Rate)
- Scenario 4 – Recyclables, Organics, and C&D
  - 3.32M Tons Recovered (12.3% Recovery Rate)

Cost Estimate Methodology
Cost-of-Service Estimation

- Used for Collection Modeling
- Greater Detail, Less Sensitivity
- How It Works:
  - Estimate Operational Demand (Labor & Equipment)
  - Based on Productivity & Customer Demand
  - Applies Direct Cost Factors
  - Applies Overhead Cost Factors

Cost Estimate Methodology Market Pricing-Based Estimation

- Used for Processing, Transportation, and Disposal
- Based on Competitive Pricing
- How it Works:
  - Market Prices (e.g. Tipping Fees)
  - Detailed Data from Limited Sources to Allocate into Cost Categories
  - Use Similar Regions to Fill Data Gaps

Cost Estimate Methodology Commodity Pricing

- Industry Publication Survey Data :
  - Fibers, Metals, Plastics, Glass
  - SecondaryMaterialsPricing.com
  - SecondaryFiberPricing.com
- Industry Data Gathering & Literature Review:
  - Compost, Wood Waste, Inert Materials
- ADC Not Assumed as Market

Preliminary Findings

Numbers Will Change as Discussed in Foreward

- Need to Recover 1.48M to 3.54M MORE Tons per Year to Achieve 5MMTCO2e Target by 2020
- Net Statewide System Cost Increase of $70M(2.8%) to $185M(7.5%)
- Additional $39 to $63 per ton Recovered
- Additional $14 to $37 per MTCO2e Reduced

Results
Statewide Cost Estimate

	State of California				
	Baseline	**Scenario 1**	**Scenario 2**	**Scenario 3**	**Scenario 4**
Annual Collection Subtotal	$ 1,314,914,930	$ 1,551,179,170	$ 1,520,880,243	$ 1,654,826,600	$ 1,589,151,734
Annual Processing Subtotal	$ -	$ 113,720,308	$ 101,880,274	$ 156,102,898	$ 140,871,688
Annual Transportation Subtotal	$ -	$ 22,011,704	$ 23,524,711	$ 39,694,520	$ 38,556,073
Annual Disposal Subtotal	$ 1,172,765,638	$ 1,108,015,959	$ 1,104,892,899	$ 1,017,765,929	$ 1,027,625,163
Annual Commodity Subtotal	$ -	$ (213,575,183)	$ (193,278,454)	$ (195,301,536)	$ (180,352,460)
TOTAL Annual Cost/(Savings)	**$ 2,487,680,568**	**$ 2,581,351,958**	**$ 2,557,899,672**	**$ 2,673,088,410**	**$ 2,615,852,197**
Annual Cost Increase					
Collection Increase	$ -	$ 236,264,240	$ 205,965,314	$ 339,911,670	$ 274,236,805
Processing Increase	$ -	$ 113,720,308	$ 101,880,274	$ 156,102,898	$ 140,871,688
Transportation Increase	$ -	$ 22,011,704	$ 23,524,711	$ 39,694,520	$ 38,556,073
Disposal Increase	$ -	$ (64,749,680)	$ (67,872,740)	$ (154,999,710)	$ (145,140,476)
Commodity Increase	$ -	$ (213,575,183)	$ (193,278,454)	$ (195,301,536)	$ (180,352,460)
TOTAL Increase	**$ -**	**$ 93,671,390**	**$ 70,219,104**	**$ 185,407,842**	**$ 128,171,629**
Total Tons Managed	26,960,850	26,960,850	26,960,850	26,960,850	26,960,850
Total Tons Recovered	-	1,477,897	1,557,370	3,537,202	3,320,486
MTCO2E	-	5,000,000	5,000,000	5,000,000	5,000,000
Cost per Ton Managed	$ 92.27	$ 95.74	$ 94.87	$ 99.15	$ 97.02
Additional Cost per Ton Recovered	n/a	$ 63.38	$ 45.09	$ 52.42	$ 38.60
Additional Cost per MTCO2E	n/a	$ 18.73	$ 14.04	$ 37.08	$ 25.63

NOTE: Numbers will change as discussed in Foreward.

Results
System-wide Net Savings Possible

	Southern California A (Urban)				
	Baseline	**Scenario 1**	**Scenario 2**	**Scenario 3**	**Scenario 4**
Annual Collection Subtotal	$ 768,613,286	$ 862,429,975	$ 843,913,814	$ 902,888,096	$ 857,728,340
Annual Processing Subtotal	$ -	$ 72,362,202	$ 65,327,999	$ 100,190,384	$ 91,065,392
Annual Transportation Subtotal	$ -	$ 11,487,114	$ 13,752,936	$ 23,348,718	$ 23,733,683
Annual Disposal Subtotal	$ 764,235,861	$ 724,969,201	$ 720,650,539	$ 670,939,036	$ 674,367,923
Annual Commodity Subtotal	$ -	$ (134,748,708)	$ (124,623,141)	$ (123,095,784)	$ (116,041,786)
TOTAL Annual Cost/(Savings)	**$ 1,532,849,147**	**$ 1,536,499,784**	**$ 1,519,022,147**	**$ 1,574,270,449**	**$ 1,530,853,552**
Annual Cost Increase					
Collection Increase	$ -	$ 93,816,689	$ 75,300,528	$ 134,274,810	$ 89,115,054
Processing Increase	$ -	$ 72,362,202	$ 65,327,999	$ 100,190,384	$ 91,065,392
Transportation Increase	$ -	$ 11,487,114	$ 13,752,936	$ 23,348,718	$ 23,733,683
Disposal Increase	$ -	$ (39,266,661)	$ (43,585,322)	$ (93,296,826)	$ (89,867,938)
Commodity Increase	$ -	$ (134,748,708)	$ (124,623,141)	$ (123,095,784)	$ (116,041,786)
TOTAL Increase	**$ -**	**$ 3,650,637**	**$ (13,827,001)**	**$ 41,421,301**	**$ (1,995,595)**
Total Tons Managed	18,115,350	18,115,350	18,115,350	18,115,350	18,115,350
Total Tons Recovered	-	930,772	1,033,141	2,211,496	2,130,218
MTCO2E	-	3,148,975	3,316,942	3,126,053	3,207,690
Cost per Ton Managed	$ 84.62	$ 84.82	$ 83.85	$ 86.90	$ 84.51
Additional Cost per Ton Recovered	n/a	$ 3.92	$ (13.38)	$ 18.73	$ (0.94)
Additional Cost per MTCO2E	n/a	$ 1.16	$ (4.17)	$ 13.25	$ (0.62)

NOTE: Numbers will change as discussed in Foreward.

Results
Collection Costs

	Scenario 4 - All Tons Excluding Solid Waste							
	Northern California A (Urban)		Northern California A (Rural)		Northern California B (Urban)		Northern California B (Rural)	
Collection costs	RECOVERED	TOTAL	RECOVERED	TOTAL	RECOVERED	TOTAL	RECOVERED	TOTAL
Labor-Related Costs	$ 22,580,178	$ 115,068,147	$ 1,761,069	$ 5,635,401	$ 12,874,526	$ 42,942,912	$ 9,094,145	$ 23,334,613
Fuel Costs	$ 4,910,641	$ 24,984,991	$ 516,424	$ 1,638,887	$ 3,765,522	$ 12,647,255	$ 2,825,711	$ 7,292,024
Repairs & Maintenance	$ 10,253,529	$ 56,650,075	$ 1,013,537	$ 3,259,754	$ 7,926,480	$ 25,056,306	$ 3,816,923	$ 10,041,803
Direct Depreciation	$ 4,972,230	$ 27,612,449	$ 644,404	$ 1,984,926	$ 4,379,189	$ 14,724,117	$ 3,991,801	$ 10,212,944
Other Costs	$ 24,336,905	$ 124,896,206	$ 2,721,632	$ 8,227,872	$ 17,885,591	$ 56,229,583	$ 27,154,283	$ 67,833,749
Annual Collection Subtotal	**$ 67,053,484**	**$ 349,211,869**	**$ 6,657,067**	**$ 20,746,841**	**$ 46,831,308**	**$ 151,600,172**	**$ 46,882,863**	**$ 118,715,134**
Collection Cost/(Savings) per Ton	$ 112.68	$ 89.38	$ 226.72	$ 112.68	$ 217.81	$ 112.82	$ 484.64	$ 194.54

	Southern California A		Southern California B (Urban)		Southern California B (Rural)		State of California	
Collection costs	RECOVERED	TOTAL	RECOVERED	TOTAL	RECOVERED	TOTAL	RECOVERED	TOTAL
Labor-Related Costs	$ 61,136,400	$ 260,656,752	$ 6,247,533	$ 21,276,112	$ 1,026,856	$ 2,586,902	$ 114,720,707	$ 471,500,839
Fuel Costs	$ 18,894,605	$ 80,823,111	$ 1,938,110	$ 6,556,355	$ 364,427	$ 900,142	$ 33,215,439	$ 134,842,765
Repairs & Maintenance	$ 37,885,764	$ 157,331,251	$ 3,507,954	$ 13,942,712	$ 333,678	$ 774,720	$ 64,737,865	$ 267,056,621
Direct Depreciation	$ 20,236,156	$ 87,698,762	$ 2,223,804	$ 7,500,795	$ 522,156	$ 1,296,034	$ 36,969,741	$ 151,030,028
Other Costs	$ 50,262,011	$ 271,218,465	$ 8,576,357	$ 28,866,228	$ 3,126,274	$ 7,449,378	$ 134,063,054	$ 564,721,482
Annual Collection Subtotal	**$ 188,414,935**	**$ 857,728,340**	**$ 22,493,759**	**$ 78,142,203**	**$ 5,373,391**	**$ 13,007,177**	**$ 383,706,806**	**$1,589,151,734**
Collection Cost/(Savings) per Ton	$ 88.45	$ 71.55	$ 172.79	$ 111.28	$ 397.90	$ 175.73	$ 115.56	$ 84.49

NOTE: Numbers will change as discussed in Foreward.

Results
Collection Operational Demand

	State of California				
	Baseline	Scenario 1	Scenario 2	Scenario 3	Scenario 4
Staffing Levels					
Driver	3,576	4,495	4,403	4,780	4,652
Pool Driver	548	529	519	566	551
Container Delivery	155	185	179	210	201
Dispatch	155	179	176	193	188
Route Supervisor	251	283	278	303	295
Operations Manager	183	214	210	232	226
TOTAL Headcount	4,867	5,883	5,764	6,283	6,113
Total Headcount Increase (from Baseline)	-	1,016	897	1,416	1,246
Equipment Needs					
Collection Vehicle - Front End Loader	3,088	3,892	3,770	4,326	4,150
Collection Vehicle - Roll-off	1,156	1,288	1,325	1,162	1,213
Container Delivery Vehicle	155	185	179	210	201
Supervisor Vehicle	434	497	488	535	521
Collection Bins (1 - 8 CY)	746,688	1,242,346	1,212,009	1,233,582	1,207,519
Collection Drop Boxes (10 - 50 CY)	27,975	31,164	32,032	28,071	29,357

NOTE: Numbers will change as discussed in Foreward.

Results
Processing Costs

Processing Costs	Scenario 4 - All Tons Excluding Solid Waste			
	Northern California A (Urban)	Northern California A (Rural)	Northern California B (Urban)	Northern California B (Rural)
Labor-Related Costs	$ 13,842,061	$ 587,603	$ 3,098,605	$ 1,736,032
Energy Costs	$ 1,073,737	$ 47,135	$ 306,476	$ 158,310
Repairs & Maintenance	$ 7,215,367	$ 307,815	$ 1,678,319	$ 816,205
Direct Depreciation	$ 3,066,727	$ 121,758	$ 621,315	$ 299,791
Other Costs	$ 6,721,135	$ 311,495	$ 1,877,737	$ 916,589
Annual Processing Subtotal	**$ 31,919,028**	**$ 1,375,806**	**$ 7,582,452**	**$ 3,926,927**
Processing Cost per Ton	$ 46.80	$ 43.09	$ 33.35	$ 37.32

Processing Costs	Southern California A	Southern California B (Urban)	Southern California B (Rural)	State of California
Labor-Related Costs	$ 37,924,124	$ 1,786,705	$ 309,190	$ 59,284,320
Energy Costs	$ 3,436,973	$ 172,439	$ 20,078	$ 5,215,150
Repairs & Maintenance	$ 19,204,017	$ 958,291	$ 104,331	$ 30,284,346
Direct Depreciation	$ 10,100,673	$ 349,859	$ 37,892	$ 14,598,015
Other Costs	$ 20,399,604	$ 1,145,953	$ 117,345	$ 31,489,858
Annual Processing Subtotal	**$ 91,065,392**	**$ 4,413,247**	**$ 588,836**	**$ 140,871,688**
Processing Cost per Ton	$ 42.75	$ 33.90	$ 43.60	$ 42.43

NOTE: Numbers will change as discussed in Foreward.

Results
Transportation Costs

Transportation Costs	Scenario 4 - All Tons Excluding Solid Waste			
	Northern California A (Urban)	Northern California A (Rural)	Northern California B (Urban)	Northern California B (Rural)
Labor, Equipment, and Other Costs	$ 5,650,468	$ 334,743	$ 2,701,868	$ 1,454,486
Fuel Costs	$ 1,998,996	$ 51,147	$ 333,334	$ 208,093
Annual Transportation Subtotal	$ 7,649,463	$ 385,890	$ 3,035,202	$ 1,662,579
Transportation Cost per Ton	$ 11.22	$ 12.08	$ 13.35	$ 15.80

Transportation Costs	Southern California A	Southern California B (Urban)	Southern California B (Rural)	State of California
Labor, Equipment, and Other Costs	$ 17,611,568	$ 1,644,480	$ 195,651	$ 29,593,264
Fuel Costs	$ 6,122,115	$ 220,103	$ 29,021	$ 8,962,809
Annual Transportation Subtotal	$ 23,733,683	$ 1,864,584	$ 224,671	$ 38,556,073
Transportation Cost per Ton	$ 11.14	$ 14.32	$ 16.64	$ 11.61

NOTE: Numbers will change as discussed in Foreward.

Results
Disposal Costs

	DISPOSAL COSTS							
	Northern California A (Urban)	Northern California A (Rural)	Northern California B (Urban)	Northern California B (Rural)	Southern California A (Urban)	Southern California B (Urban)	Southern California B (Rural)	State of California
Disposal Costs								
Disposal Costs per Ton	$ 43.48	$ 49.88	$ 57.22	$ 46.59	$ 42.19	$ 41.83	$ 49.53	$ 43.50
Annual Baseline Disposal	$ 231,074,501	$ 11,217,983	$ 88,191,818	$ 34,704,861	$764,235,861	$ 38,835,775	$4,504,839	$ 1,172,765,638
Scenario 1 - Annual Disposal	$ 217,792,079	$ 10,447,594	$ 81,921,263	$ 32,400,100	$724,969,201	$ 36,287,832	$4,197,890	$ 1,108,015,959
Scenario 1 - Avoided Disposal (savings)	$ (13,282,422)	$ (770,389)	$ (6,270,555)	$ (2,304,761)	$ (39,266,661)	$ (2,547,943)	$ (306,948)	$ (64,749,680)
Scenario 2 - Annual Disposal	$ 217,604,318	$ 10,533,959	$ 82,664,532	$ 32,653,438	$720,650,539	$ 36,554,564	$4,231,549	$ 1,104,892,899
Scenario 2 - Avoided Disposal (savings)	$ (13,470,183)	$ (684,024)	$ (5,527,286)	$ (2,051,423)	$ (43,585,322)	$ (2,281,211)	$ (273,289)	$ (67,872,740)
Scenario 3 - Annual Disposal	$ 198,872,214	$ 9,386,187	$ 73,176,266	$ 29,067,997	$670,939,036	$32,589,005	$3,735,224	$ 1,017,765,929
Scenario 3 - Avoided Disposal (savings)	$ (32,202,287)	$ (1,831,796)	$ (15,015,552)	$ (5,636,864)	$ (93,296,826)	$ (6,246,770)	$ (769,615)	$ (154,999,710)
Scenario 4 - Annual Disposal	$ 201,422,330	$ 9,625,116	$ 75,180,900	$ 29,802,774	$674,367,923	$33,390,099	$3,836,021	$ 1,027,625,163
Scenario 4 - Avoided Disposal (savings)	$ (29,652,171)	$ (1,592,867)	$ (13,010,918)	$ (4,902,087)	$ (89,867,938)	$ (5,445,677)	$ (668,817)	$ (145,140,476)

NOTE: Numbers will change as discussed in Foreward.

Results
Commodity Value

	Scenario 4 - All Tons Excluding Solid Waste							
	Northern California A (Urban)	Northern California A (Rural)	Northern California B (Urban)	Northern California B (Rural)	Southern California A (Urban)	Southern California B (Urban)	Southern California B (Rural)	State of California
Commodity Costs (Savings)								
Paper	$ (8,312,203)	$ (393,546)	$ (2,837,453)	$ (1,228,359)	$ (24,490,602)	$ (1,545,030)	$ (153,311)	$ (38,960,503)
Cardboard	$ (8,439,856)	$ (426,890)	$ (3,052,995)	$ (1,380,660)	$ (27,606,014)	$ (1,689,600)	$ (174,008)	$ (42,770,023)
Metals	$ (11,587,209)	$ (506,080)	$ (3,583,217)	$ (1,664,365)	$ (37,982,869)	$ (2,047,870)	$ (200,215)	$ (57,571,825)
Wood Waste	$ (67,155)	$ (1,163)	$ (3,841)	$ (1,921)	$ (299,818)	$ (2,526)	$ (241)	$ (376,666)
Green Waste	$ (832,903)	$ (31,457)	$ (130,444)	$ (63,119)	$ (2,162,627)	$ (129,264)	$ (7,055)	$ (3,356,869)
Compostables	$ (2,488,130)	$ (129,495)	$ (590,376)	$ (273,334)	$ (6,518,681)	$ (453,146)	$ (36,699)	$ (10,489,861)
Mixed Plastics	$ (5,330,956)	$ (251,843)	$ (1,826,698)	$ (810,859)	$ (16,145,544)	$ (989,300)	$ (105,633)	$ (25,460,833)
Glass	$ (291,496)	$ (14,893)	$ (106,493)	$ (50,379)	$ (835,631)	$ (60,133)	$ (6,857)	$ (1,365,881)
Total Commodity Costs (Savings)	**$ (37,349,908)**	**$ (1,755,366)**	**$ (12,131,518)**	**$ (5,472,995)**	**$ (116,041,786)**	**$ (6,916,869)**	**$ (684,018)**	**$ (180,352,460)**

NOTE: Numbers will change as discussed in Foreward.

Results
Assumed Per Ton Commodity Value

$/Ton Revenue							
	1	2	3	4	5	6	7
Material	Northern A Urban	Northern A Rural	Northern B Urban	Northern B Rural	Southern A	Southern B Urban	Southern B Rural
HDPE	$ 351	$ 351	$ 351	$ 351	$ 351	$ 351	$ 351
PET	$ 370	$ 370	$ 370	$ 370	$ 370	$ 370	$ 370
Aluminum cans and nonferrous metals	$ 1,254	$ 1,254	$ 1,254	$ 1,254	$ 1,254	$ 1,254	$ 1,254
Steel cans and ferrous metals	$ 102	$ 102	$ 102	$ 102	$ 102	$ 102	$ 102
Glass containers	$ 18	$ 18	$ 18	$ 18	$ 18	$ 18	$ 18
Cardboard and paper bags	$ 102	$ 102	$ 102	$ 102	$ 102	$ 102	$ 102
Magazines and catalogs	$ 82	$ 82	$ 82	$ 82	$ 82	$ 82	$ 82
Newsprint	$ 85	$ 85	$ 85	$ 85	$ 85	$ 85	$ 85
Office paper	$ 177	$ 177	$ 177	$ 177	$ 177	$ 177	$ 177
Phone books	$ 93	$ 93	$ 93	$ 93	$ 93	$ 93	$ 93
Compostable paper	$ 8	$ 8	$ 5	$ 5	$ 7	$ 7	$ 5
Dimensional lumber	$ 2	$ 2	$ 1	$ 1	$ 2	$ 1	$ 1
Food	$ 8	$ 8	$ 5	$ 5	$ 7	$ 7	$ 5
Yard waste	$ 8	$ 8	$ 5	$ 5	$ 7	$ 7	$ 5

NOTE: Numbers will change as discussed in Foreward.

Cost Forecasting Methodology

- 2008 Baseline Estimates
- Growth/Contraction in Tons
  - Source: LAO Economic Forecast
  - Employment Rate (Non-C&D Tons)
  - Housing Permits (C&D Tons)
- Inflation of Per Ton Costs by Cost Category
  - Source: U.S. Bureau of Labor Statistics
  - Labor, Fuel, R&M, Depreciation, Other
  - Regional Variation for Labor and Other

Preliminary Conclusions

- High GHG Material Programs = Lowest Tons to Target
- Programs Including C&D = Low Cost
- Programs Including Organics = High Cost
- Economies of Scale are Significant
  - Available Tons, Density
- Avoided Disposal is Significant

PUBLIC COMMENTS, QUESTIONS & ANSWERS